Remarks/Arguments

This response and amendment are being submitted in response to the Office Action mailed July 25, 2006. Claims 1 – 8, 10 – 12, 14 – 19 and 21 – 23 are currently pending in the present application. Claims 1 – 8, 10 – 12, 14 – 19 and 21 – 23 are amended by this response. Claims 9, 13, and 20 are cancelled by this response.

By this response Claims 1, 12, 13, 14 and 23 have been amended to recite elements that highlight a feature of the present invention that generally comprises accessing information from the byte stream by using the layout and offset calculations, wherein the step of accessing information further comprises the steps of scanning a list of key values representing a table column serialized within the byte stream to determine an index position. And further, using the index position in conjunction with offset calculations and offset tables serialized at the start of lists within the byte stream to find information in lists representing non-key table columns.

Claim Objections and Claim Rejections under 35 USC § 112

Presently, Claims 2 – 11, and 15 – 22, are objected to for minor informalities and under 35 U.S.C. § 112, second paragraph for being indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicant regards as the invention. Specifically, Claims 2 – 11 were objected to, and rejected, for reciting the phrase "A method." The phraseology was objected to for constructing the dependent claim in such a manner that the claim would appear to be an independent claim. Additionally, the phrase "A method" was rejected under 35 U.S.C. § 112, second paragraph for having an insufficient antecedent basis for the limitation within the claim.

Claims 15 – 22 were objected to, and rejected, for reciting the phrase "An apparatus." This phraseology was objected to for constructing the dependent claim in such a manner that the claim would appear to be an independent claim. Additionally, the

phrase "An apparatus" was rejected under 35 U.S.C. § 112, second paragraph for having an insufficient antecedent basis for the limitation within the claim.

In response to the objections and rejections of Claims 2 – 11, and 15 – 22, the Applicant has amended the claims. By this response, Claims 2 – 22 have been amended to recite the phrase "The method," and Claims 15 – 22 have been amended to recite the phrase "The apparatus." These claim amendments have been made to distinctly exemplify that each claim is uniquely constructed as a dependent claim, and to further ensure that the subject matter of each claim has the proper antecedent reference to the foundational subject matter of the independent claim from which each claim depends.

Therefore, in view of the present amendments to Claims 2 – 11, and 15 – 22, the Applicant respectfully requests that the objections to Claims 2 – 11, and 15 – 22, and further, the rejections of the same claims under 35 U.S.C. § 112, second paragraph, be withdrawn.

Claim Rejections under 35 USC § 101

Claims 12, 13, and 23 are currently rejected under 35 U.S.C. § 101, as being directed to non-statutory subject matter. Specifically, the claims have been rejected as being directed to an invention that purely comprises software.

In response to the rejection, the Applicant has amended the preambles of Claims 12 and 23, and cancelled claim 13. Claims 12 and 23 have been amended to recite preamble elements that are directed to a computer program product that includes a computer readable medium useable by a processor, the medium having stored thereon a sequence of instructions which, when executed by the processor execute a series of processing steps.

Therefore, in view of the present actions, the Applicant respectfully requests that the rejections of Claims 12, 13, and 23 under 35 U.S.C. § 101, be withdrawn.

USC § 103 (a) Rejections

Claims 1, 2, 11, 12 – 14, 22, and 23 are currently rejected under 35 U.S.C. § 103 (a) as being unpatentable or U.S. Patent Application Publication No. 2005/0091576 issued to Relyea, et al. (hereinafter referred to as "Relyea") in view of U.S. Patent No. 6,459,393 issued to Nordman (hereinafter referred to as "Nordman").

Disclosure Aspects of the Presently Examined Patent Application

Aspects of the present invention provide improved time performance for accessing elements comprised within lists by randomly accessing a byte stream, in particular when the lists represent tables with key columns. Specifically, information structures are employed whose schemas contain arbitrarily nested tuples, and lists. Further, aspects of the present invention operate in the presence of other information structure elements such as variants, recursion, and dynamic typing. Tables are stored in nested column order, thereby extending the concept of column order so as to apply to arbitrarily nested tables. Standard offset calculation techniques are utilized within the nested lists that result from the nested column order, thus making both sequential scanning and random access (by row position) efficient. Therefore, the issue of finding row contents corresponding to a specific value of a key column is rendered efficient and this extends to nested cases.

Within Aspects of the present invention, the random access process supports two operations. Both operations are accomplished without de-serializing a byte stream as a whole. Aspects provide for retrieving a single scalar value from the byte stream, given only the field number from a layout to which the value corresponds, and the index positions in any homogeneous collections within which the value is enclosed. Additionally, given a table (the table being represented in the schema as a list of tuples and represented in the in-memory representation as a homogeneous collection of heterogeneous collections) a column of the table is scanned within the byte stream to determine the index matched by a particular key value. The field number from the layout

to which the values making up the column correspond, and the index positions in any homogeneous collections within which all of the values comprising the column are enclosed designates the table row. This is accomplished in a time that is proportional to the number of rows in the table, but nearly insensitive to the number of columns, or other aspects of information structure complexity.

The Relyea Patent Application

The Relyea patent application describes a programming interface that provides an API for a network platform upon which developers can build Web applications and services. In particular, the application describes an exemplary API for operating systems that make use of a network platform, such as the .NET Framework created by Microsoft Corporation. As described, he network platform utilizes XML for describing data, in addition to other open protocols, such as Simple Object Access Protocol (SOAP). As described, API functions are grouped into multiple namespaces. Namespaces essentially define a collection of classes, interfaces, delegates, enumerations, and structures, which are collectively called "types", that provide a specific set of related functionality. As described within Relyea, a class represents managed heap allocated data that has reference assignment semantics. Further, an interface defines a contract that other types can implement. By using namespaces, a designer can organize a set of types into a hierarchical namespace. The designer is able to create multiple groups from the set of types, with each group containing at least one type that exposes logically related functionality.

The Nordman Patent

The Nordman patent describes an apparatus and method for the improvement of communication capabilities of computer systems. In particular, a series of data buffers and data registers are used to process incoming high-speed data signals. Thereafter, the incoming signal can be reformatted and manipulated at a much lower frequency than the original transmission frequency. A de-serializer is used to sample a greater portion of the

incoming data signal than usual to further increase reliability. Additionally, a serializer that receives parallel data input from a computer and serializes the data for transmission over a high-speed serial communication link is utilized. On a receiving end, a de-serializer can quickly and efficiently transform the serial data back into parallel form for use within the computer system on the receiving end. Thus, by utilizing two related clock signals, one clock signal being an integer multiple of the other, a self-synchronizing serializer/de-serializer can be created.

Combination of Cited Art

In combination, the Patent Office has cited and relied upon the Relyea patent application and the Nordman patent allegedly to teach the computing a layout from the schema tree representation by depth-first enumeration of leaf nodes of the schema; the serializing the byte stream from the in-memory representation while grouping together all scalar items from the in-memory representation corresponding to each schema node; and the accessing of information from the byte stream by using the layout and offset calculations. In particular, the step of accessing information further comprises the steps of scanning a list of key values representing a table column serialized within the byte stream to determine an index position, and using the index position in conjunction with offset calculations and offset tables serialized at the start of lists within the byte stream to find information in lists representing non-key table columns.

The invention claimed in the present application, as set forth in independent Claims 1, 12, 14, and 23 are not rendered obvious by the above references. Specifically, in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references or combination of references must teach or suggest all the claim limitations. Most importantly, the teaching or

suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP §2142.

The Applicant respectfully assert that there is no suggestion or motivation found in the text of the Relyea patent application to modify or combine the reference with that of the invention as disclosed within the Relyea patent. Further as specified above, Applicant respectfully asserts that the combination of the Relyea patent application and Nordman patent do not cure the deficiencies as noted above as to the Relyea patent application neither teaching or suggesting the context of the aspects of the invention that are disclosed in the present application.

Therefore, in view of the above remarks the Applicant respectfully request that the rejections of independent Claims 1, 12, 14, and 23 be withdrawn under 35 U.S.C. § 103(a).

Dependent Claims

Further, because the independent Claims 1, 12, 14, and 23 are believed to stand in condition for allowance, Applicant submits that the dependent Claims 2 – 8, 10, 11, 15 – 19, 21, and 22 are similarly are allowable. Applicant nevertheless respectfully submits that each of these dependent claims is allowable based on the additional recitation of such dependent claim, and Applicant requests consideration thereof as necessary. Applicant further does not acquiesce in the rejections of these dependent claims, but Applicant does not *per se* address each such rejection, as Applicant believes such rejections are moot in view of the foregoing remarks.

Therefore, in view of the above-mentioned arguments, the Applicant respectfully requests that the rejection of Claims 2 – 8, 10, 11, 15 – 19, 21, and 22 under 35 U.S.C. § 103(a) be withdrawn.
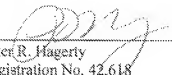
Allowable Subject Matter

Claims 4, 6 – 9, and 16 – 20, have been found to be objected to for being dependent upon a rejected base claim, but deemed to be allowable if re-written in independent form, including all of the limitations of the base claim and any intervening claim.

In view of the above, it is respectfully submitted that this application is in condition for allowance. Accordingly, it is respectfully submitted that this application be allowed and that a Notice of Allowance be issued. If the Examiner believes that a telephone conference with the Applicant's attorneys would be advantageous to the disposition of this case then the Examiner is encouraged to telephone the undersigned.

Respectfully submitted,

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